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EXAMINER

NGUYEN, LUONG TRUNG

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 7/20/2007 have been fully considered but they are not persuasive.

In re page 6, Applicants argue that Borg et al. does not disclose or suggest “a reference circuit that generates a unique reference voltage associated with one of the pixels in the group of pixels.”

In response, regarding claim 1, Applicants recited limitation “a reference circuit that generates a unique reference voltage associated with one of the pixels in the group of pixels.” The examiner considers that Borg et al. does disclose this limitation. Borg et al. discloses reference column amplifier 240, which generates a unique voltage associated with each pixel 10 in a column of pixels (figure 3A, column 6, lines 17-60). Noted that claim 1 does not require “generating a unique reference voltage for each pixel in the row” as argued by the Applicants on page 7.

In re page 6, Applicants argue that Borg et al. does not disclose or suggest “a reference circuit that samples a unique reference voltage as each video voltage is read from the video circuits” as amended in claims 5, 10 and similar in method claim 13.

In response, regarding claim 5, Applicants amended claim 5 with limitation “a reference circuit that samples a unique reference voltage as each video voltage is read from the video circuits.” The examiner considers that Borg et al. does disclose this limitation. Borg et al.

discloses reference column amplifier 240, which samples a unique voltage as each video voltage is read from the video circuits (figures 3A, column 4, lines 15-29; column 6, lines 17-60).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Borg et al. (US 6,476,864).

Regarding claim 1, Borg et al. discloses an active pixel sensor array sampling system comprising:

a video circuit (column amplifiers 230, figure 3A, column 6, lines 17-60) that generates a video voltage from each one of a group of pixels;

a reference circuit (reference column amplifier 240, figure 3A, column 6, lines 17-60) that generates a unique reference voltage associated with each one of the pixels in the group of pixels; wherein the video circuit comprises a plurality of video amplifiers (column amplifiers 230, figure 3A, column 6, lines 17-60), each video amplifier being associated with a respective one of the pixels in the group of pixels (each amplifier 230 associated with each pixel 10 on each column line 38, figure 3A, column 6, lines 17-60), wherein the reference circuit comprises a single reference amplifier (reference column amplifier 240, figure 3A, column 6, lines 17-60) associated with all of the pixels in the group of pixels, and wherein the reference amplifier

samples and holds a unique reference voltage for each one of the pixels in the group of pixels (column 4, lines 15-29).

Regarding claim 2, Borg et al. discloses wherein each of the video amplifiers is associated with all of the pixels in a respective column of pixels (each amplifier 230 associated with each pixel 10 on each column line 38, figure 3A, column 6, lines 17-60).

Regarding claim 3, Borg et al. discloses a differential amplifier (differential image signal 118, figures 3A, 4, column 6, lines 45-60) that generates a differential voltage responsive to the video voltage and the unique reference voltage associated with each pixel.

Regarding claim 4, Borg et al. discloses the reference amplifier has an output continuously coupled to the differential amplifier during reading of the video voltage of each of the video amplifiers (figures 3A, 4, column 6, lines 17-60).

Regarding claim 5, Borg et al. discloses an active pixel sensor array sampling circuit that samples a voltage on each one of a plurality of pixels, the circuit comprising:

- a plurality of video circuits (column amplifiers 230, figure 3A, column 6, lines 17-60), each video circuit generating a video voltage related to a voltage on a respective one of the pixels as its respective pixel is sampled;

- a reference circuit (reference column amplifier 240, figure 3A, column 4, lines 15-29,

column 6, lines 17-60) that samples a unique reference voltage as each video voltage is read from the video circuits.

Regarding claim 6, Borg et al. discloses wherein the pixels are arranged in columns and rows, wherein the reference circuit is associated with all of the pixels of each row of pixels, and wherein the reference circuit samples and holds a unique reference voltage as each video voltage of a row of pixels is read (figure 3A, column 4, lines 15-29, column 6, lines 17-60).

Regarding claim 7, Borg et al. discloses a differential amplifier (differential image signal 118, figures 3A, 4, column 6, lines 45-60) that provides a differential voltage representing a difference between each read video voltage and each sampled unique reference voltage.

Regarding claim 8, Borg et al. discloses wherein the reference amplifier has an output continuously coupled to the differential amplifier during the reading of the video voltages for each row of pixels (figures 3A, 4, column 6, lines 17-60).

Regarding claim 9, Borg et al. discloses wherein each video amplifier is associated with all of the pixels of a respective column of pixels (each amplifier 230 associated with each pixel 10 on each column line 38, figure 3A, column 6, lines 17-60).

Regarding claim 10, Borg et al. discloses an integrated circuit including an active pixel sensor array sampling system comprising:

a plurality of video circuits, each video circuit sampling a video voltage from each one of a group of pixels (column amplifiers 230, figure 3A, column 4, lines 15-29, column 6, lines 17-60);

a reference circuit (reference column amplifier 240, figure 3A, column 4, lines 15-29, column 6, lines 17-60) that samples a unique reference voltage as each video voltage is read from the video circuits.

Regarding claim 11, Borg et al. discloses a differential amplifier (differential image signal 118, figures 3A, 4, column 6, lines 45-60) that generates a differential voltage responsive to each read video voltage and its corresponding sampled unique reference voltage.

Regarding claim 12, Borg et al. discloses wherein the pixels are arranged in columns and rows and wherein each video circuit is associated with all of the pixels of a respective column of pixels (figure 3A).

Regarding claims 13, 14, 16, claims 13, 14, 16 are method claims of apparatus claims 10-12, respectively. Therefore, claims 13, 14, 16 are rejected for the reasons given with respect to claims 10-12.

Regarding claim 15, Borg et al. discloses steps of arranging the pixels in plural groups (group of pixels 10 are arranged on each column 38, figure 3A), and providing a single reference

(reference amplifier 240, figure 3A, column 6, lines 35-60) amplifier for all of the groups of pixels.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571) 272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID L. OMETZ can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David L. Ometz/
Supervisory Patent Examiner, Art Unit
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